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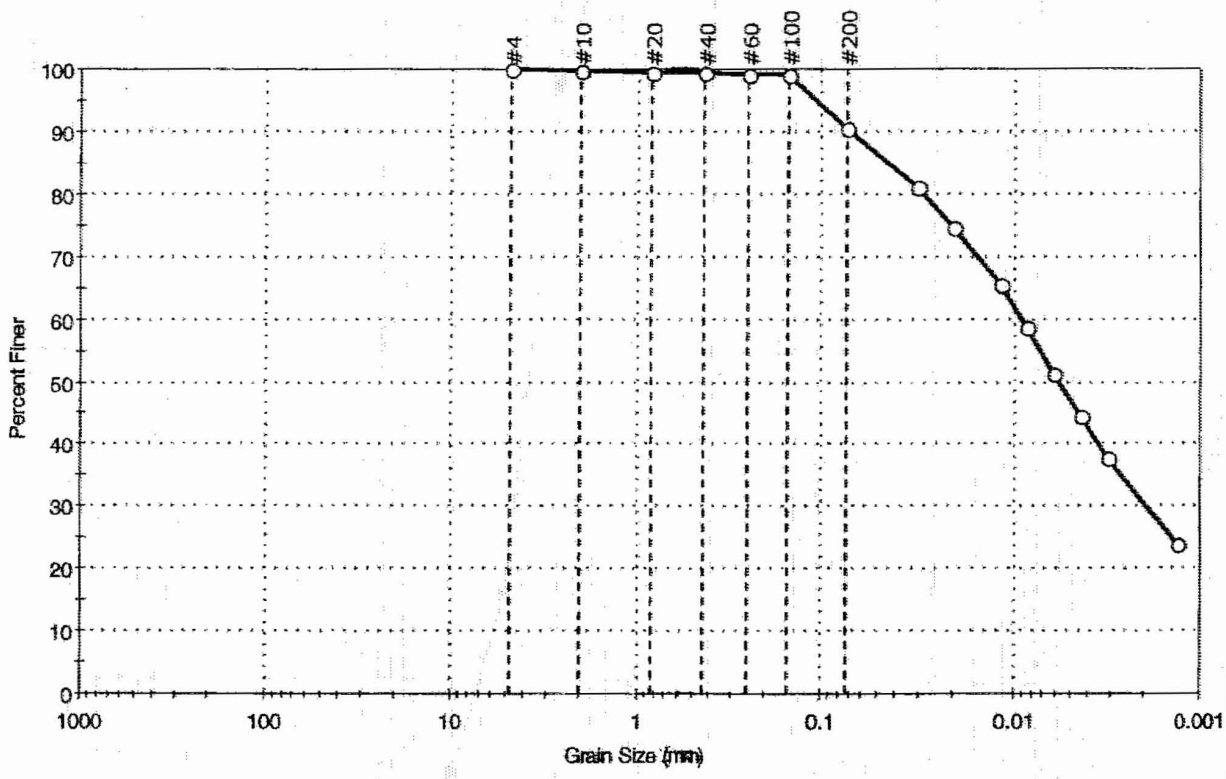
Client:	Schnabel Engineering, Inc.		
Project:	Subsurface Investigation Calvert Cliffs Nuclear PP		
Location:	Calvert County, MD	Project No:	GTX-6880
Boring ID: B-423	Sample Type: tube	Tested By:	n/a
Sample ID:S-41	Test Date: 10/17/06	Checked By:	mcm
Depth : 188.5-189.0 ft	Test Id: 100192		
Test Comment: ---			
Sample Description: Moist olive gray sandy clay			
Sample Comment: ---			

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	0.0	9.4	90.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.84	99		
#40	0.42	99		
#60	0.25	99		
#100	0.15	99		
#200	0.074	91		
--	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
--	0.0314	81		
--	0.0201	75		
--	0.0118	65		
--	0.0085	59		
--	0.0061	51		
--	0.0043	45		
--	0.0031	38		
--	0.0013	24		

Coefficients

D_{85} = 0.0443 mm D_{30} = 0.0019 mm
D_{60} = 0.0090 mm D_{15} = N/A
D_{50} = 0.0057 mm D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM elastic silt (MH)

AASHTO Clayey Soils (A-7-5 (59))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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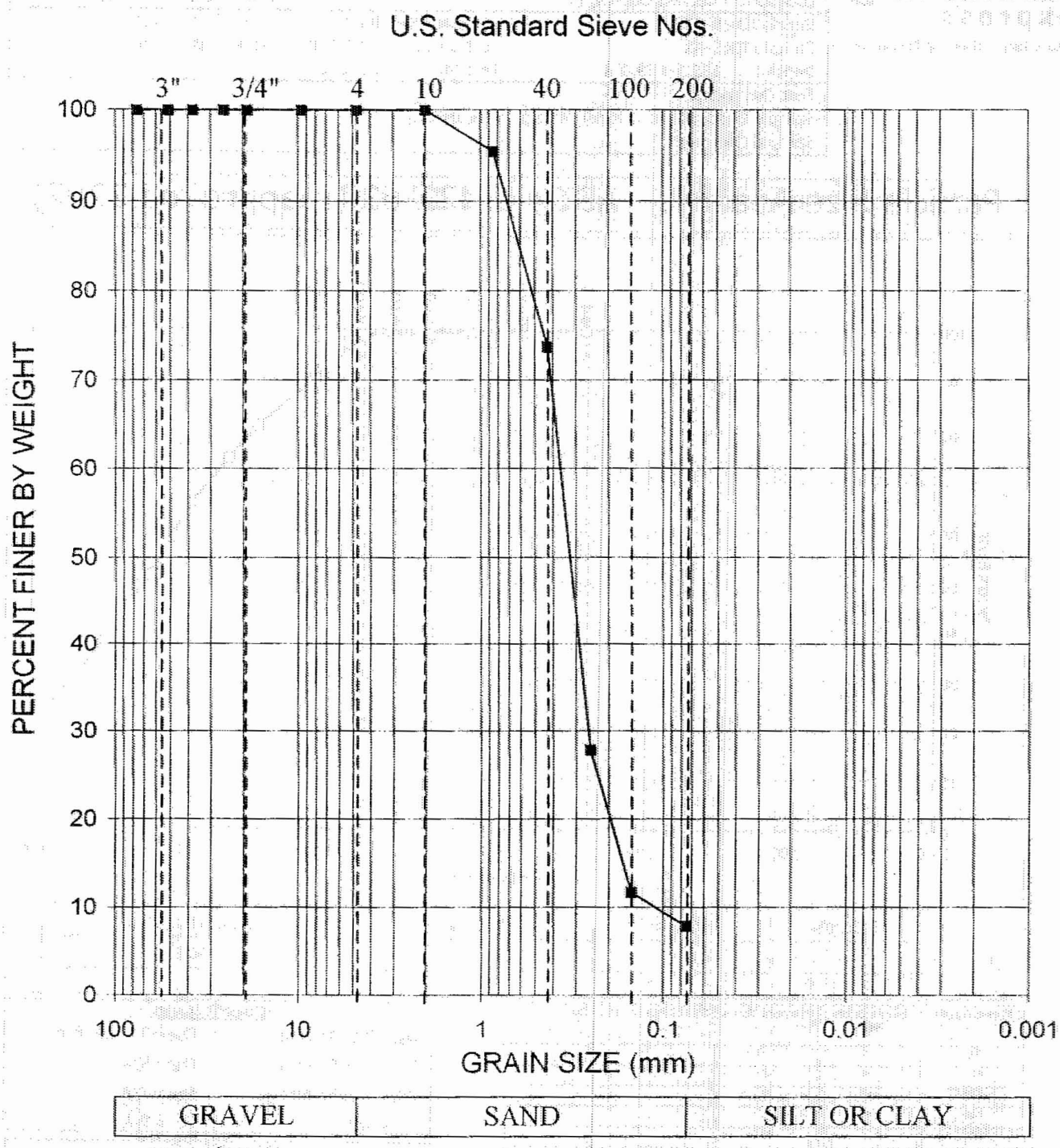

GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/19/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-425	3.5	Poorly Graded SAND with silt, brown	SP-SM		

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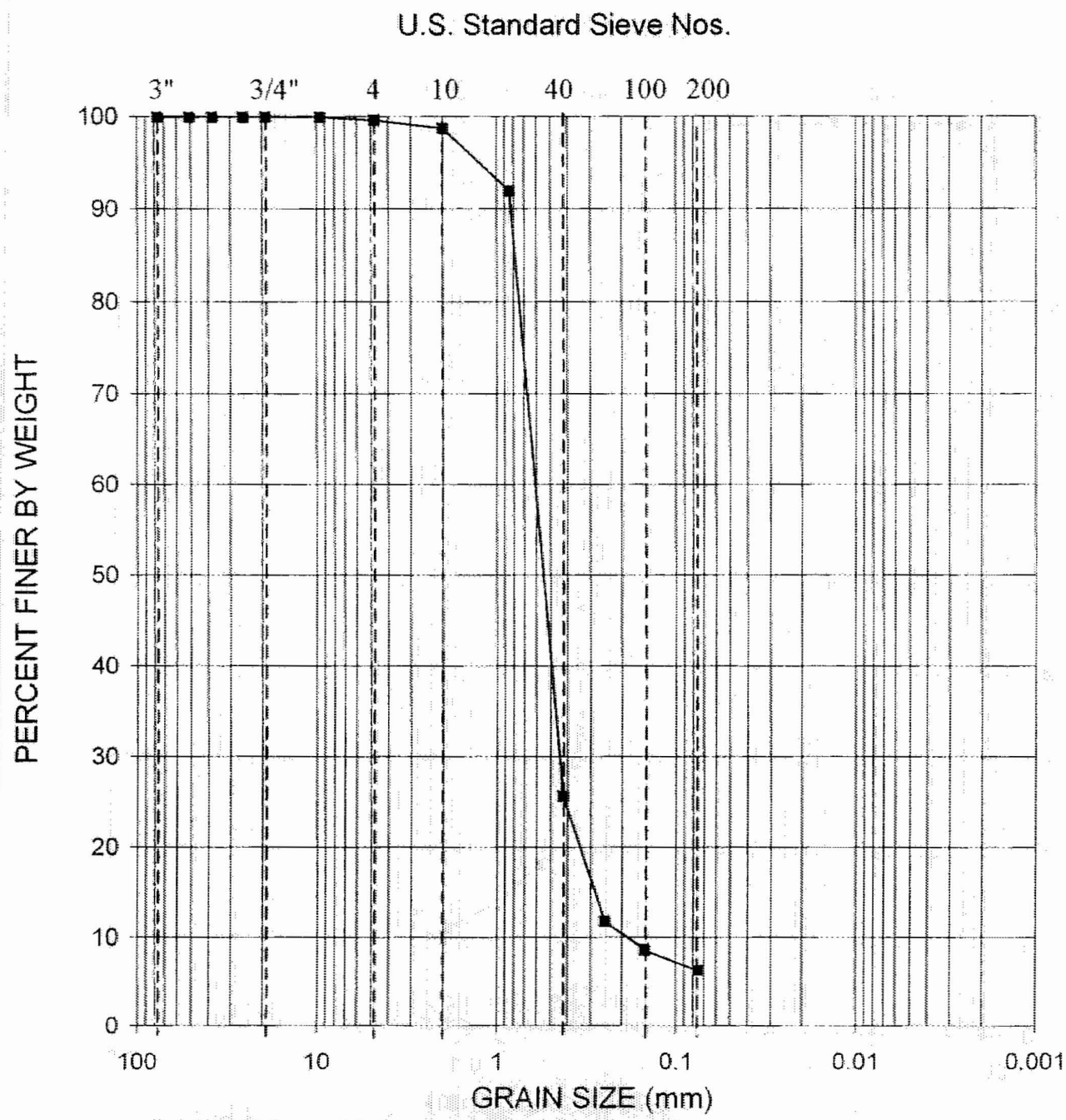

GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.	06120048.00	Date	9/18/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-425	13.5	Poorly Graded SAND, with silt, brown	SP-SM		

Schnabel

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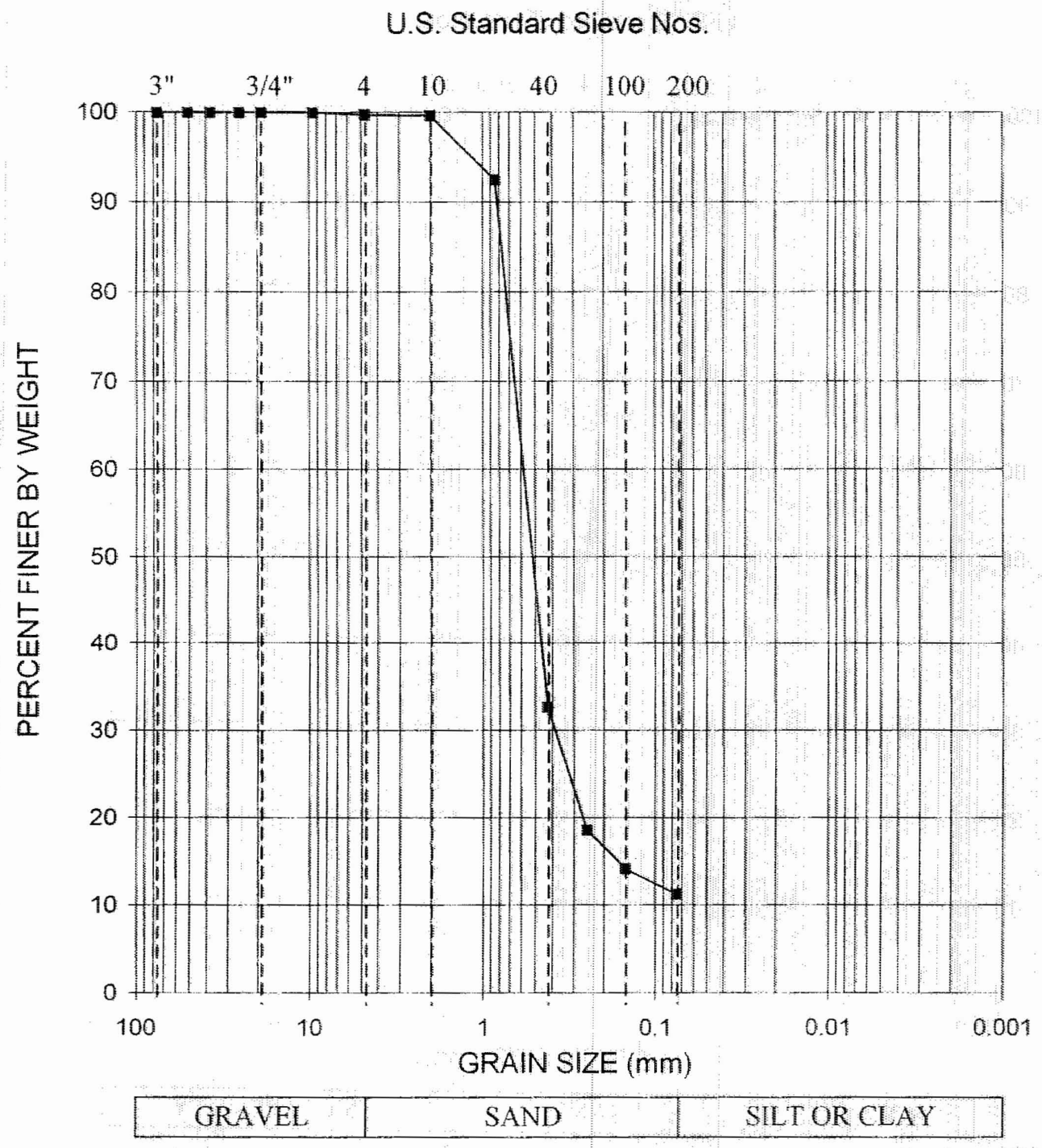


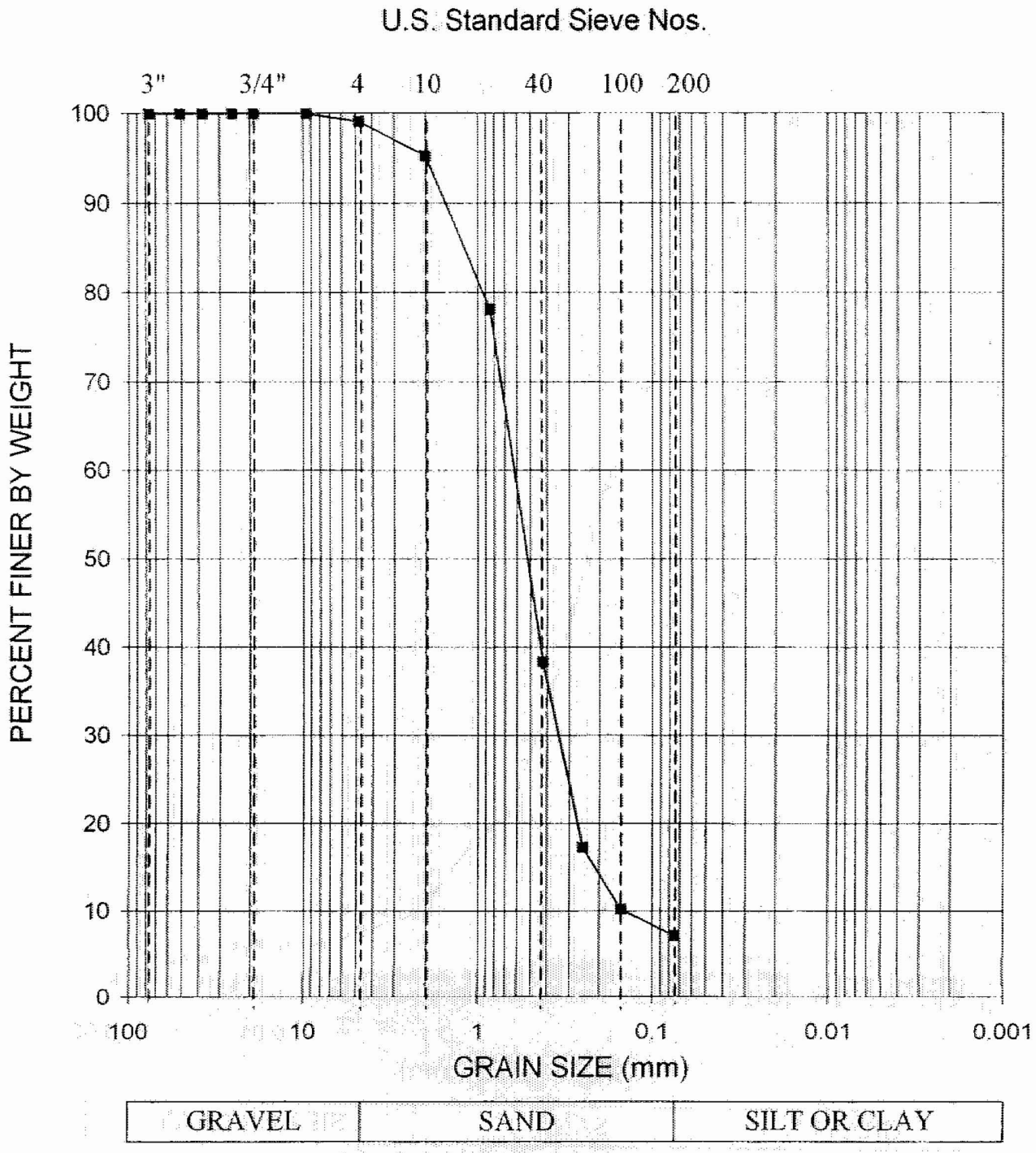
GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.:	06120048.00	Date:	9/18/2006
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-425	30.0	Poorly Graded SAND, with silt, brown	SP-SM			

Schnabel

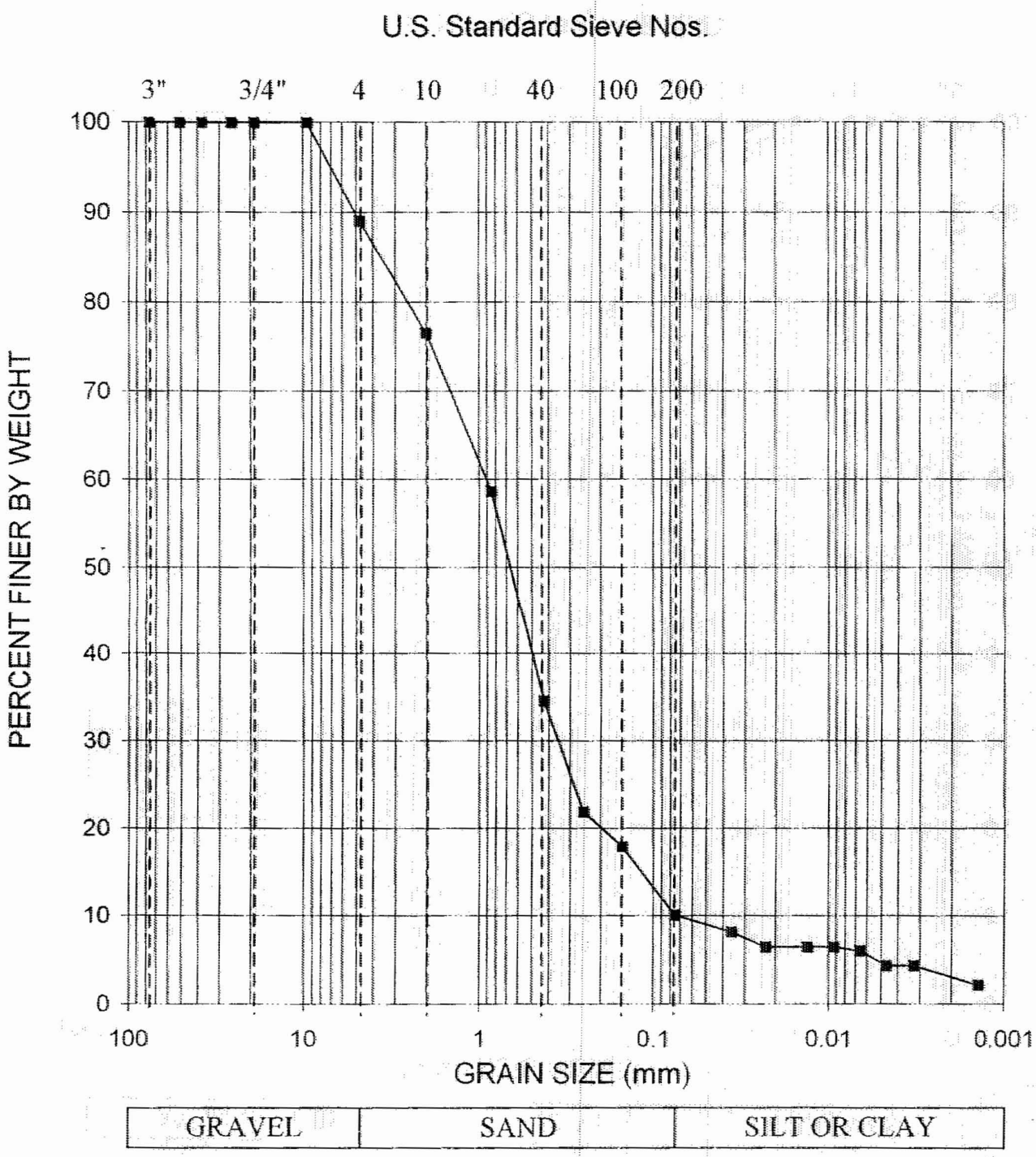
Schnabel Engineering



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.:	06120048.00	Date:	9/15/2006
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-425	40.0	Poorly Graded SAND, with silt, brown	SP-SM			Schnabel Engineering



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/22/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-425	50.0	Well Graded SAND, with silt, trace gravel, brown	SW-SM	28	11

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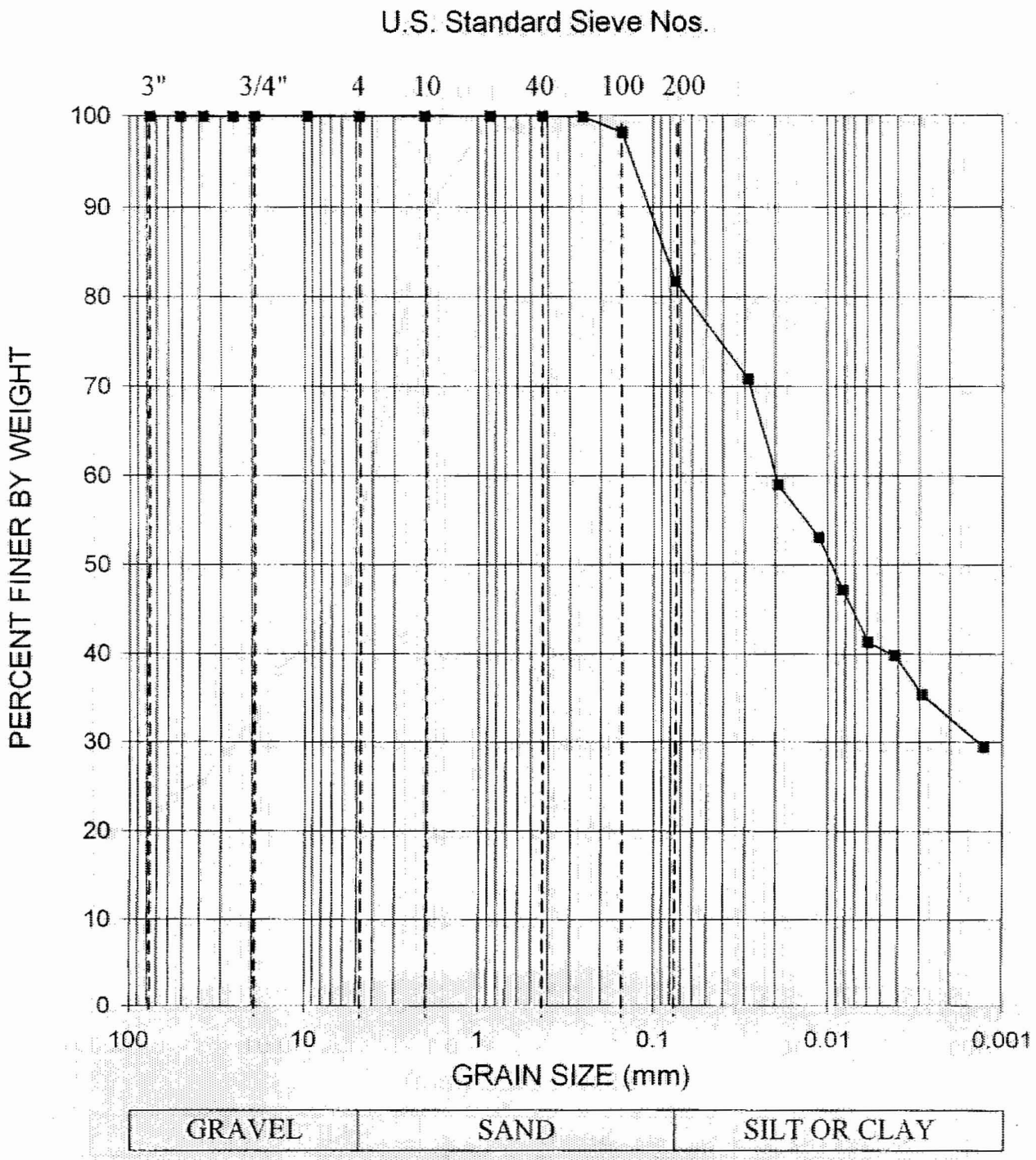
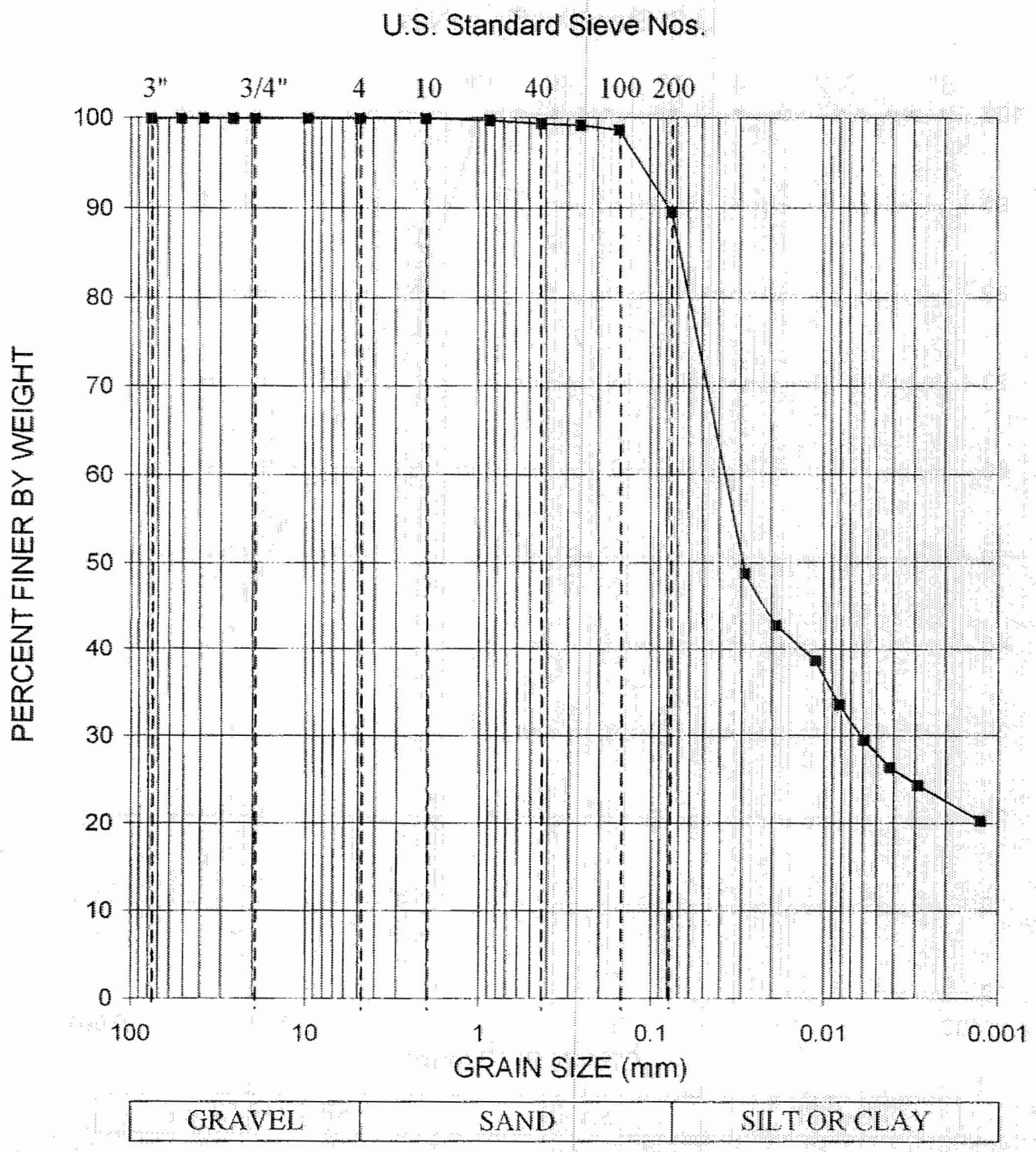


GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.	06120048.00	Date:	9/20/2006
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-425	57.0	FAT CLAY, with sand , gray	CH	55	30	Schnabel Engineering



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/20/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-425	65.0	FAT CLAY, trace sand, dark gray	CH	69	41

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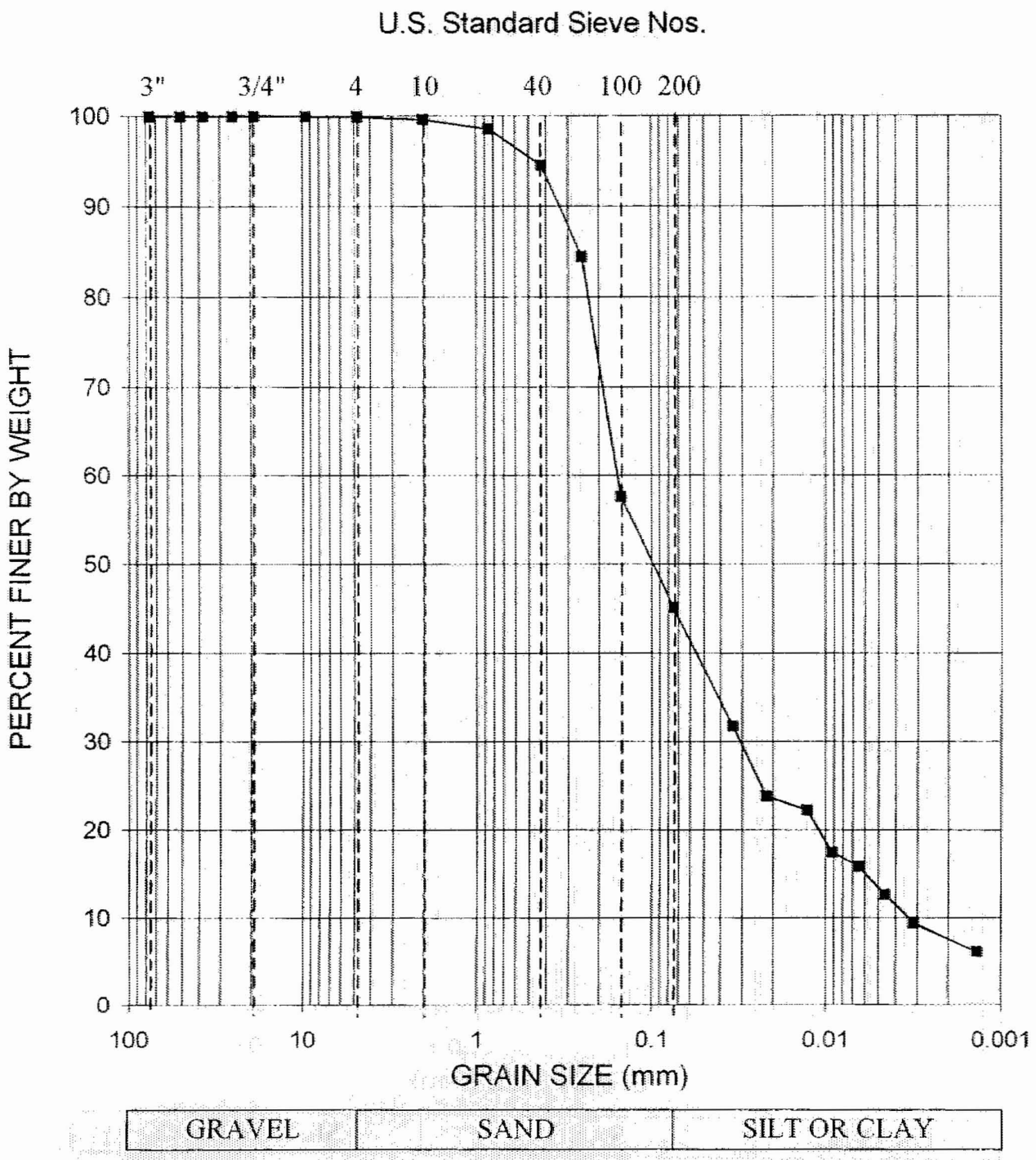

GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/19/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-425	75.0	Clayey SAND, dark gray	SC	41	21

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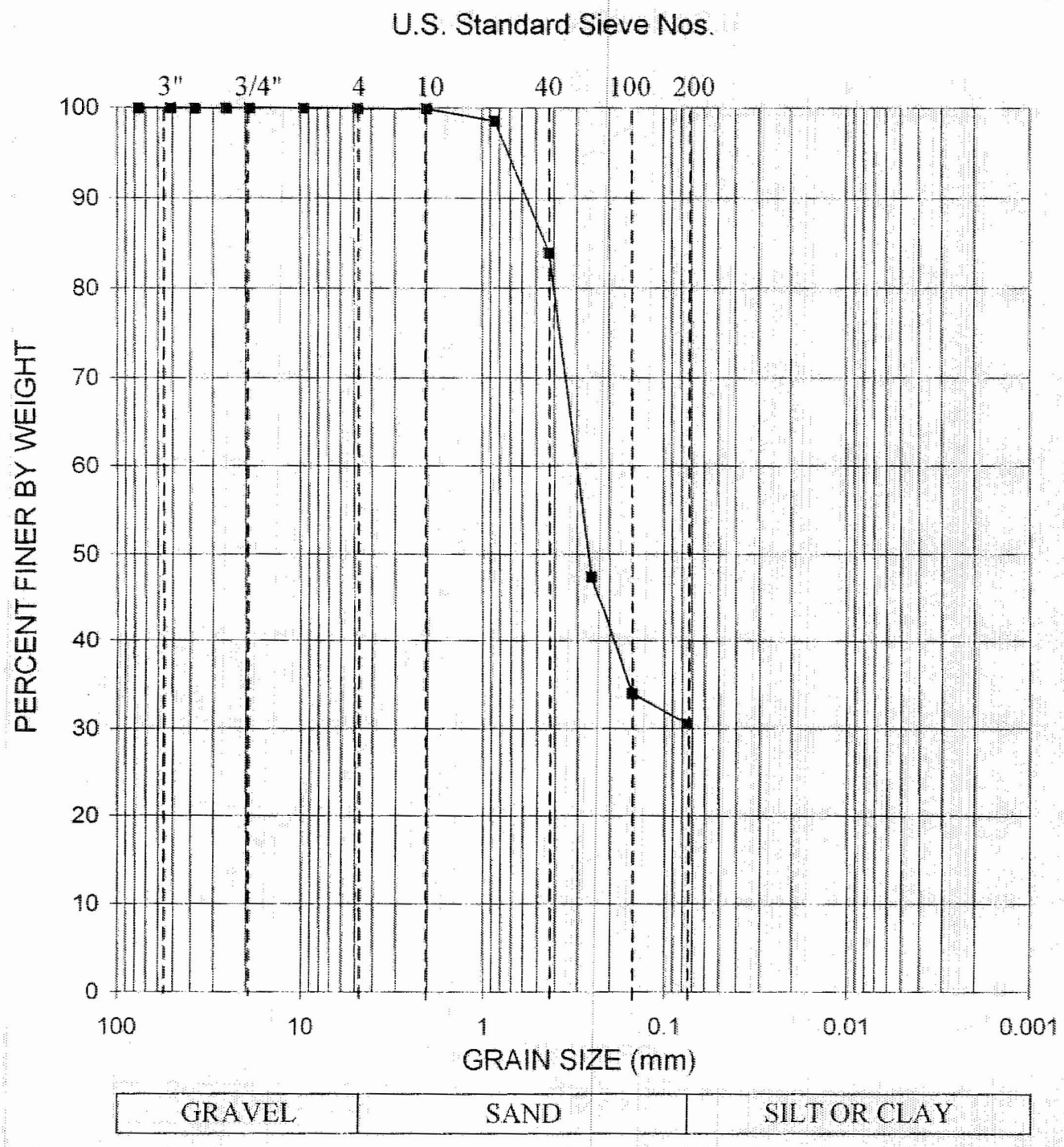
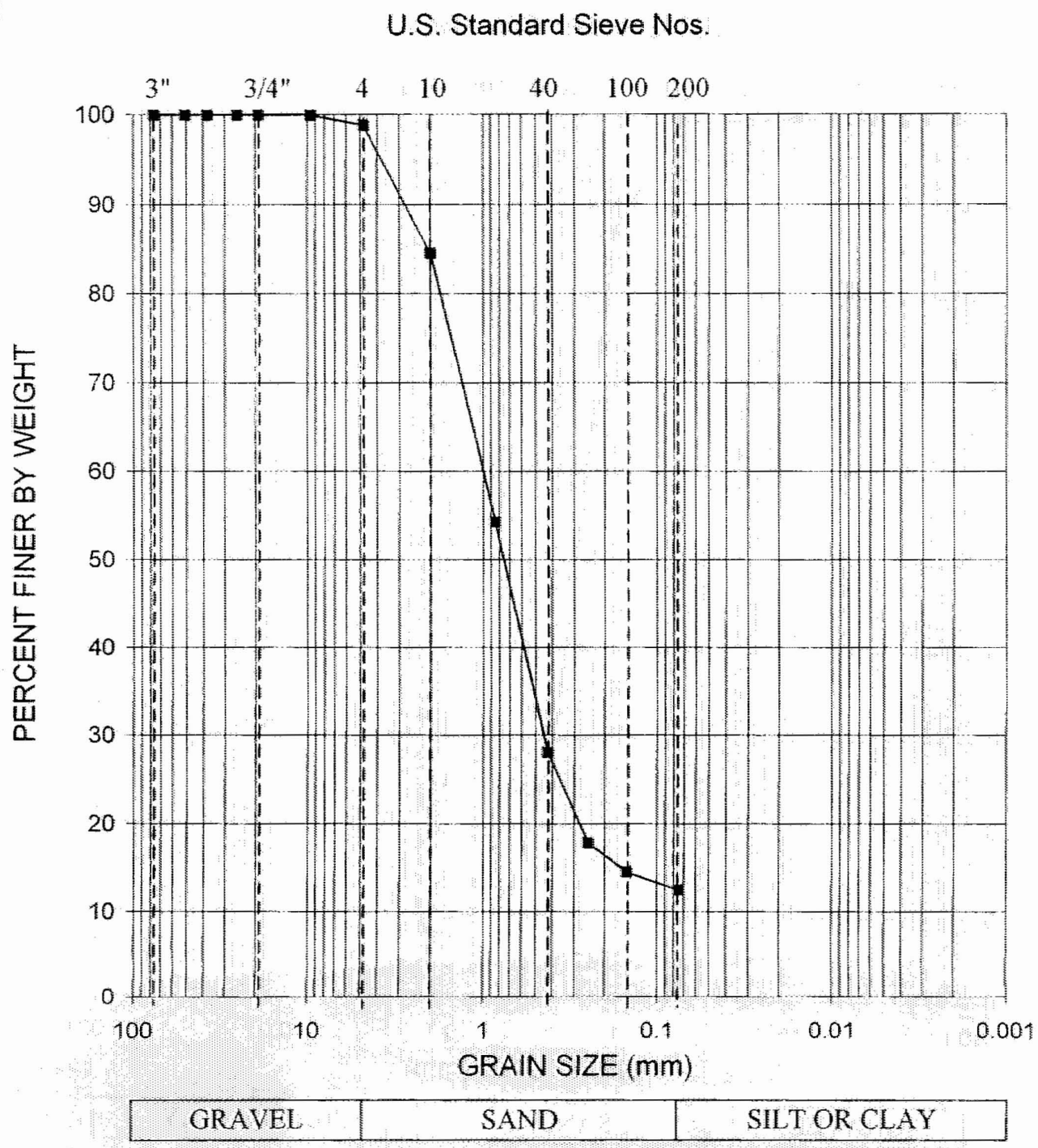


GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland		Contract No.:	06120048.00	Date:	9/15/2006
Boring No.	Depth (ft)	Sample Description	Class.	LL	PI	
B-427	2.5	Silty SAND, dark brown	SM			

Schnabel Engineering



GRADATION CURVE

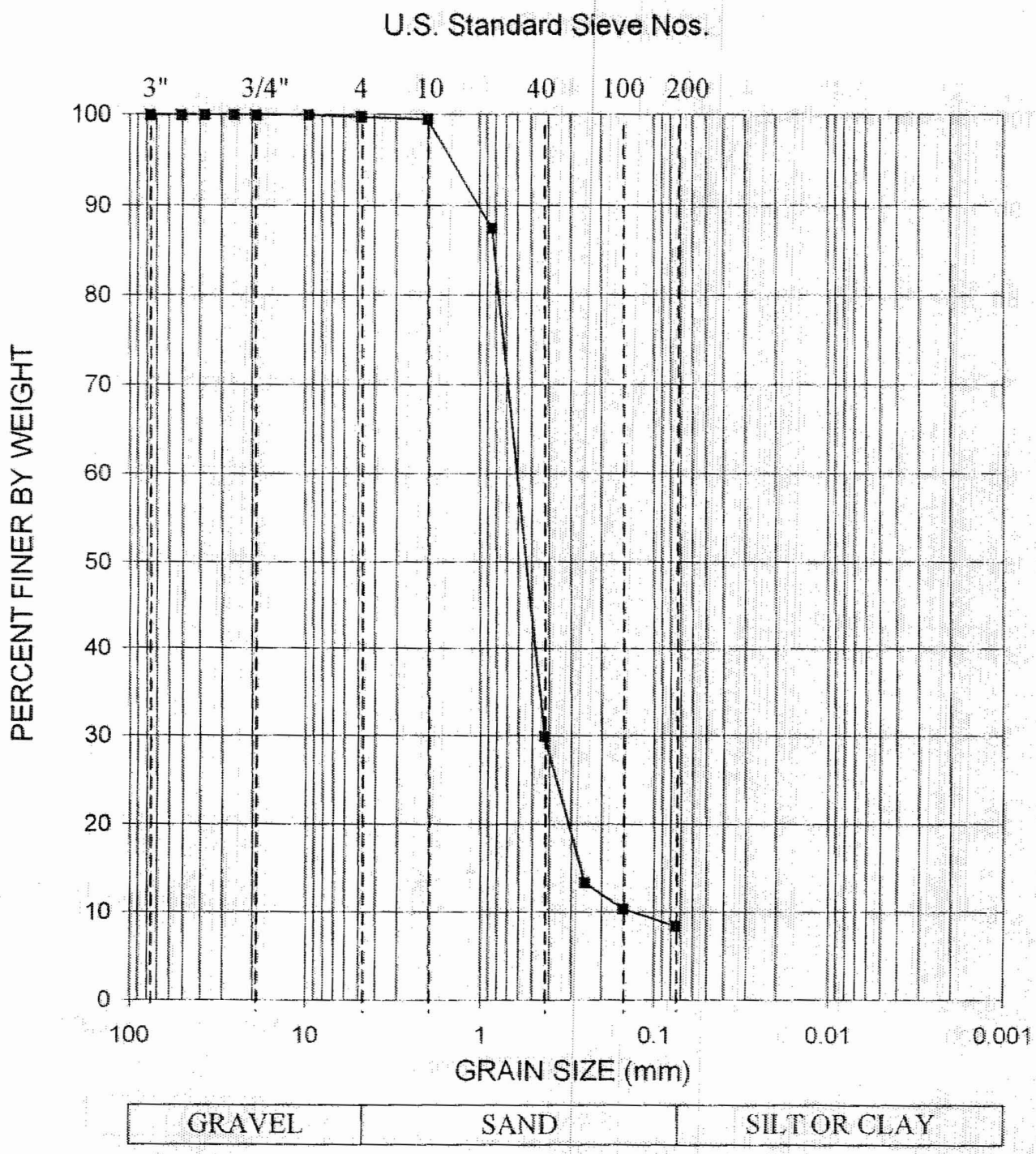
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/18/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-427	18.5	Silty SAND, trace gravel, light brown	SM		

Schnabel

Schnabel Engineering



GRADATION CURVE

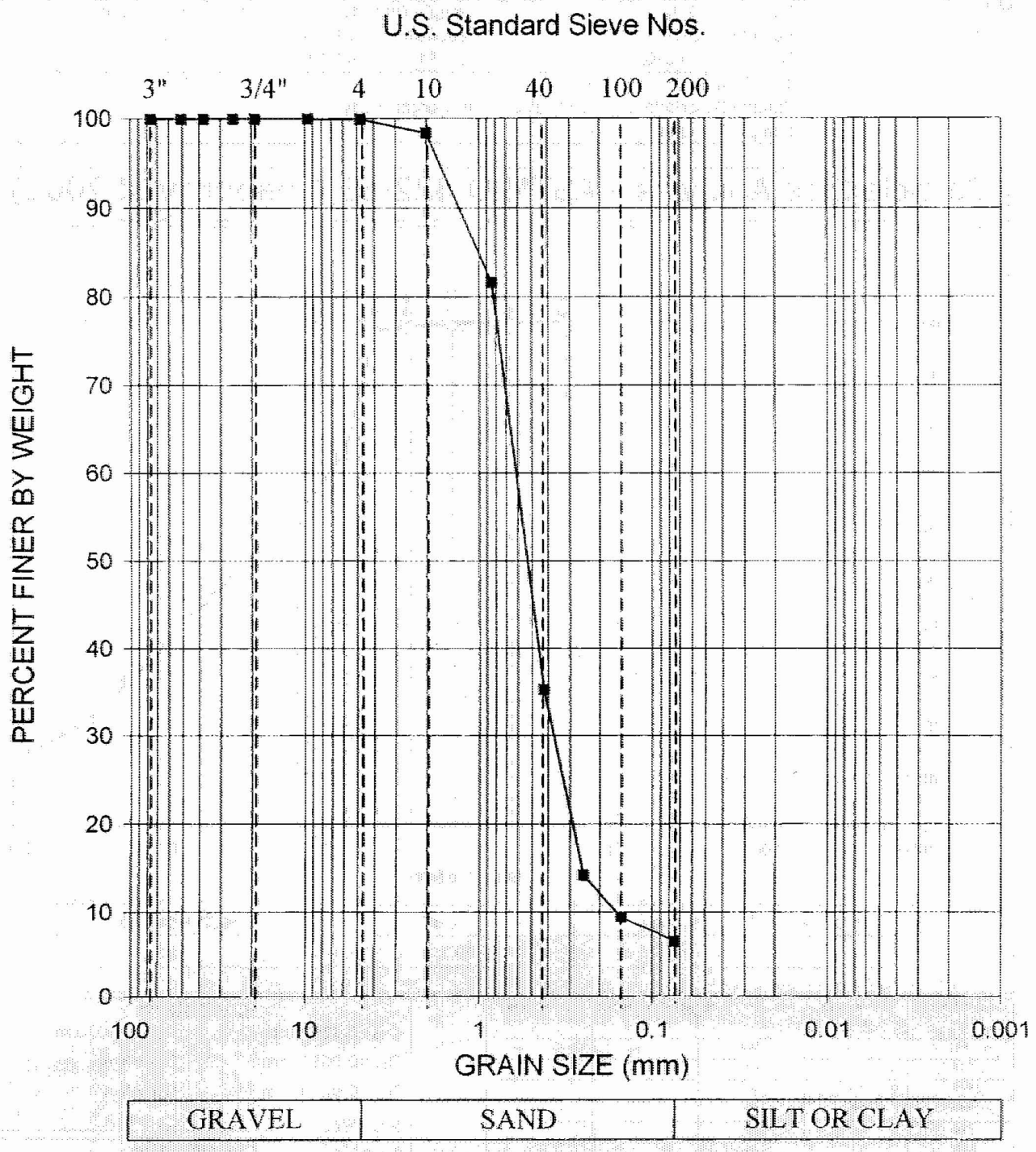
ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.:	06120048.00	Date:	9/15/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-427	28.5	Poorly Graded SAND, with silt, light brown	SP-SM		

Schnabel

Schnabel Engineering



GRADATION CURVE

ASTM D422

Project:	Constellation Energy Group COLA Project, Calvert Cliffs NuclearPower Plant (CCNPP), Calvert County, Maryland	Contract No.: 06120048.00	Date: 9/18/2006

Boring No.	Depth (ft)	Sample Description	Class.	LL	PI
B-427	48.5	Poorly Graded SAND, with silt, brown	SP-SM		

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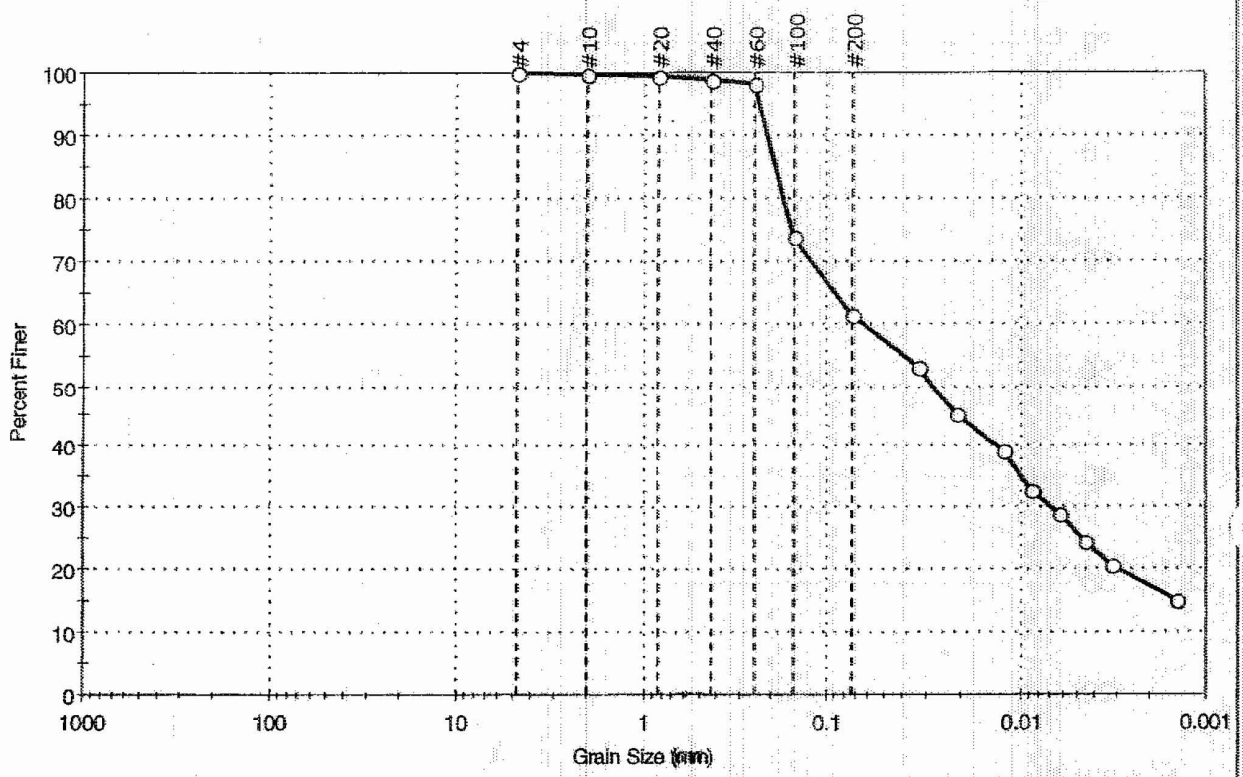
Client:	Schnabel Engineering, Inc.		
Project:	Subsurface Investigation Calvert Cliffs Nuclear PP		
Location:	Calvert County, MD	Project No:	GTX-6880
Boring ID: B-427	Sample Type: tube	Tested By:	sam
Sample ID:S-16	Test Date: 10/11/06	Checked By:	mcm
Depth : 63.5-65.5 ft	Test Id: 98601		
Test Comment: ---			
Sample Description:	Moist, black, sandy organic clay		
Sample Comment: ---			

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	38.7	61.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.84	99		
#40	0.42	99		
#60	0.25	98		
#100	0.15	74		
#200	0.074	61		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0335	53		
---	0.0212	45		
---	0.0123	39		
---	0.0088	33		
---	0.0063	29		
---	0.0045	24		
---	0.0032	21		
---	0.0014	15		

Coefficients

D_{85} = 0.1896 mm D_{30} = 0.0070 mm
D_{60} = 0.0654 mm D_{15} = N/A
D_{50} = 0.0280 mm D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM Sandy organic clay (OH)

AASHTO Clayey Soils (A-7-6 (25))

Sample/Test Description

Sand/Gravel Particle Shape : ---
Sand/Gravel Hardness : ---

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